

II. INTERPRETATION OF ELTON ET AL., U.S. PATENT 5,036,165

Important to the legal position of the Office in rejecting the present claims is its interpretation of Elton et al. (U.S. Patent No. 5,036,165; "Elton ('165)"). Applicants read the Office Action to mean that the Examiner is construing Elton ('165) as disclosing a particular type of electrical cable used as a winding in a dynamoelectric machine. For the reasons stated herein, Elton ('165) does not disclose that the electrical cable shown in Figure 1 thereof may be used for windings in a dynamoelectric machine. Rather, the conductor shown in that Figure 1 is used only for an electrical transmission and distribution cable.

Elton ('165) is a divisional of what is now issued U.S. Patent No. 4,854,565 ("Elton ('565)"). This patent is incorporated by reference, in its entirety, into Elton ('165) as is stated in column 1, lines 5-9 of Elton ('165). Therefore, Elton ('165) must be construed as if all of the text and drawings in Elton ('565) were expressly included and reproduced in Elton ('165).

Elton ('565) disclose, generally, a semi-conducting layer for insulated electrical conductors in three different embodiments. The first embodiment (Figures 1-6) deals with windings in a dynamoelectric machine. In this embodiment, the conductors are referred to exclusively as "windings" or "bars." The second embodiment (Figure 7) relates strictly to an electrical cable used for the transmission of high voltage. Within this embodiment, the conductor is referred to as a "cable" and not as a "bar" or "winding." The third embodiment (Figure 8) relates to the use of a semiconductor layer disposed on an electrical housing surrounding digital electrical equipment. The conductor in this particular embodiment is referred to as a "housing" as opposed to a "cable", a "bar," or a "winding." In reviewing both Elton et al. references,

the terms used in each reference were carefully chosen and applied uniformly throughout each reference.

The above being said, it must further be pointed out that the mention of a "dynamoelectric machine" in Elton ('165) was likely inadvertent. It appears as if that term should have been deleted when the divisional application was filed on the cable embodiment. However, whether the inclusion of "dynamoelectric machine" was inadvertent or not is immaterial since all of the Elton ('565) disclosure has been incorporated by reference, and therefore, must be considered. When the entire contents of Elton ('565) are considered, it is clear that the conductor designated 100 in Elton ('165) relates only to an electrical cable for the transmission and distribution of electrical power, not as a winding for a dynamoelectric machine. Any other interpretation would be contrary to the plain meaning given to the words as defined in the Elton specification.

III. REJECTION OF CLAIMS 1-9, 11, 15-29, 31 AND 32 UNDER 35 U.S.C. § 103(a)

Claims 1-9, 11, 15-29, 31 and 32 are rejected under 35 U.S.C. § 103(a), as being unpatentable over Applicants' Figure 3 in view of Shildneck (U.S. Patent No. 3,014,139) and Elton et al. (U.S. Patent No. 5,036,165; "Elton ('165)"). Applicants respectfully traverse this rejection for at least the following reasons: (i) there is no proper basis to support the combination of the references, and (ii) even were it proper to combine the references (which it is not), not all of the recitations in the subject claims would be met.

The MPEP § 706.02(j) sets forth the burden that the Office must carry in order to reject claims based on obviousness. One criteria that must be met is that there must be a reasonable

expectation of success. This criteria cannot be met when the aforementioned references are combined.

No Disclosure of Cable 100 as a "Winding" in a Dynamoelectric Machine

Applicants respectfully contend that, absent an express disclosure in Elton ('165) of cable 100 being used as a "winding" in a dynamoelectric machine (as described above), the rationale relied upon by the Office is unsupported by the art of record. Applicants point out that Elton ('165) at most discloses an electric cable for the transmission and distribution of voltage. Elton ('565), incorporated by reference into ('165), discloses an electrical transmission and distribution cable, as well as windings for a dynamoelectric machine, however, it fails to describe, even as a remote possibility, the use of cable 100 (which is the only structure in Elton et al. having two semiconducting layers, among other things) as a winding. This is a particularly substantial omission in light of the fact that a dynamoelectric machine is described elsewhere in the patent, and, that the patentees could have disclosed (but did not) the use of cable 100 in a generator embodiment which utilized the cable as a winding. Applicants respectfully contend that due to the characterization of the cables, it is a reasonable inference that Elton et al. did not mention the use of the cable as a winding in a dynamoelectric machine because they did not believe it would work. The meticulous use and choice of words supports this position. The Office has not set forth any reasons to the contrary, other than the alleged advantage of reduced corona discharge. As discussed below this advantage does not apply to the combination suggested by the Office.

Moreover, there is no reasonable likelihood of success for the proposed combination of Elton et al./Shildneck, because the inflexibility and brittleness of the Elton ('165) cable impairs or

precludes operation of the resulting machine. Cable 100 of Elton et al. includes a pyrolyzed glass fiber layer which would crack when attempted to be wound around a core, not only negating the advantage stated by the Office of prohibiting corona discharge, but actually failing to work at all. Elton ('565) must not have expected cable 100 to be useful as a winding in an dynamoelectric machine or else Elton ('565) would have disclosed it.

NO MOTIVATION TO COMBINE

The Office has rejected the above claims as being obvious over Applicants' Figure 3 in view of Shildneck ('139), and in further view of Elton et al. ('165). Applicants assert that this is an improper combination of references in light of the standard regarding such a combination, set forth in In Re Geiger, 815 F.2d at 688, 2 USPQ2d at 1278 (Fed. Cir. 1987). This standard is that "[o]bviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, *absent some teaching, suggestion or incentive* supporting the combination." Id. (emphasis added).

The Office states that it would be obvious to modify Elton ('165) with the teachings of Shildneck ('139), to "provide a conductor which prohibits the development of corona discharge." Applicants recognize that it appears that Elton et al. teach a problem with corona discharge in the art of dynamoelectric machines. Applicants further recognize that the invention in Shildneck is a generator with a cable winding, and that Elton ('165) generally teach the advantage of reduced corona discharge in an electrical transmission and distribution cable. However, Applicants submit that there is no incentive to combine these two references because the advantage of reduced corona discharge can only be obtained by following the teachings of Elton et al., which, for a dynamoelectric

machine, means use of a "bar" with one layer of semiconductor material, and not an electrical transmission and distribution cable 100 with two semiconductors in the manner of the claims. Therefore, there is no incentive to combine, as contended by the Examiner, when the alleged advantage is not actually realized by the proposed combination.

Accordingly, since there is no teaching, suggestion, or incentive in the art to support the modification, Applicants respectfully submit that the Office has impermissibly used Applicants' own disclosure to hunt through the prior art for needed elements, and combined them as claimed.

For at least the foregoing reasons, Applicants submit that the link in the Office's chain of reasoning, i.e., the use of the cable assembly of Shildneck having semiconductor layers taught by Elton et al., is improper. Applicants further submit that the series of logical steps required to be made are simply not taught nor suggested in the references, and that it would not have been obvious to one skilled in the art to modify Shildneck in light of Elton et al..

Accordingly, Applicants respectfully submit that claims 1, 28 and 29 define novel and non-obvious subject matter. Applicants further respectfully request that the rejection be reconsidered and withdrawn.

Dependent claims 2-9, 11, and 15-27 include all of the limitations of base claim 1, and therefore, for at least the same reasons set forth above, the rejection of these claims is also improper. Applicants respectfully request that it be reconsidered and withdrawn.

IV. REJECTION OF CLAIMS 10 AND 33-44 UNDER 35 U.S.C. § 103(a)

REJECTION OF CLAIM 10

Claim 10 stands rejected under 35 U.S.C. § 103(a), as being unpatentable over Applicants' Figure 3 in view of Shildneck (U.S. Patent No. 3,014,139), Elton et al. (U.S. Patent No. 5,036,165; "Elton ('165)") and Takaoka et al. (U.S. Patent No. 5,094,703). Applicants respectfully traverse this rejection for at least the following reason. Claim 10 is indirectly dependent on claim 1 (believed allowable), and therefore, includes all of the limitations thereof. Therefore, for the same reasons set forth above in connection with independent claim 1, claim 10 is allowable. Applicants hereby respectfully request that this rejection be reconsidered and withdrawn.

REJECTION OF CLAIMS 33-44

Claims 33-44 stand rejected under 35 U.S.C. § 103(a), as being unpatentable over Applicants' Figure 3, in view of Shildneck (U.S. Patent No. 3,014,139), Elton et al. (U.S. Patent No. 5,036,165; "Elton ('165)") and Takaoka et al. (U.S. Patent No. 5,094,703). Applicants respectfully traverse this rejection for at least the following reason. There is no proper basis to support the combination of the references.

Applicants submit that for at least the same reasons stated above in connection with claim 1 regarding the impropriety of combining the Elton ('165) and the Shildneck ('139) references, it is also improper in this rejection. Applicants further assert that it is also improper to combine Takaoka et al. ('703) to either or both of the above cited references because the base combination is improper, therefore, any broader combination is also improper.

Because this combination of references is improper, Applicants respectfully request that the Examiner reconsider and withdraw this rejection of independent claim 33.

Further, the Office has stated that one of ordinary skill would have looked to Takaoka et al. to modify the device of Elton et al. by incorporating insulated and uninsulated electrical conductor strands since such a modification would reduce the amount of insulation needed minimizing assembly and production costs. Applicants concede that Takaoka et al. disclose a conductor having insulated and uninsulated strands. However, the purpose of this feature in Takaoka et al. is to reduce the "skin effect" associated with self induced currents in a transmission and distribution cable. It has nothing to do with reducing eddy currents in the winding of an electromagnetic device. In the instant invention, the insulated strands reduce eddy current losses by restricting the paths for such currents between the conductive strands. However, it is necessary to employ at least one uninsulated strand to make contact with the semiconducting layer in order to set up an equipotential field, thereby confining the electric field and allowing the cable to be used as winding at high voltages. In Takaoka et al., the outer strands are insulated because that is where the skin effect current flows. Accordingly, Takaoka et al. teach away from the invention (as claimed) because in the invention, the outer strand or strands are uninsulated for a different purpose. Therefore, Applicants do not see, nor has the Office shown, why one of ordinary skill in the art to which the invention pertains would look to Takaoka et al..

Applicants further submit that dependent claims 34-44 include all of the limitations of base claim 33 (believed allowable), and therefore, for at least the same reasons set forth above, the rejection of these dependent claims is improper, and the Applicants respectfully request that it be reconsidered and withdrawn.

V. REJECTION OF CLAIM 12 UNDER 35 U.S.C. § 103(a)

Claim 12 is rejected under 35 U.S.C. § 103(a), as being unpatentable over Applicants' Figure 3, in view of Shildneck (U.S. Patent No. 3,014,139), Elton et al. (U.S. Patent No. 5,036,165; "Elton ('165)") and Breitenbach et al. (U.S. Patent No. 4,785,138). Applicants respectfully traverse this rejection for at least the following reason. Claim 12 is indirectly dependent on claim 1 (believed allowable), and therefore, includes all of the limitations thereof. Therefore, for the same reasons set forth above in connection with independent claim 1, claim 12 is likewise believed to be allowable. Applicants hereby respectfully request that this rejection be reconsidered and withdrawn.

VI. REJECTION OF CLAIMS 13 AND 14 UNDER 35 U.S.C. § 103(a)

Claims 13 and 14 stand rejected under 35 U.S.C. § 103(a), as being unpatentable over Applicants' Figure 3, in view of Shildneck (U.S. Patent No. 3,014,139), Elton et al. (U.S. Patent No. 5,036,165; "Elton ('165)") and Lauw (U.S. Patent No. 3,014,139). Applicants respectfully traverse this rejection for at least the following reason. Claims 13 and 14 are directly dependent on claim 1 (believed allowable), and therefore, include all of the limitations thereof. Additionally, Applicants note the Office's argument that the use of step-up/step-down transformers are a design choice, relying on the Lauw reference. Applicants respectfully submit that Lauw deals with a variable speed drive for driving a pump, which is not disclosed as operating in the 30-36kV range. The Office has assumed, without support, that principles of design choice that may apply at the voltage levels for the drive in Lauw would also apply in the 30-36kV range in the instant application. In view of the fact that the 30-36kV range is proximate the breakdown point of air (discharge), such assumption is improper.

Therefore, for the same reasons set forth above in connection with claim 1, claims 13 and 14 are believed to be allowable. Applicants hereby respectfully request that this rejection be reconsidered and withdrawn.

VII. CONCLUSION

For the foregoing reasons, all presently pending claims are now believed to be in condition for allowance. Early notice of the same is hereby respectfully requested.

Respectfully Submitted,

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